32692
Customer Number

Patent
Case No.: 58973US002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	CARPENTER, JAMES B.		
Application No.:	10/668401	Group Art Unit:	2883
Filed:	September 23, 2003	Examiner:	Chiem, Dinh D.
Title:	DEVICE FOR GRIPPING OPTICAL FIBERS		

AFFIDAVIT UNDER 37 CFR § 1.132

STATE OF TEXAS)
) ss.
COUNTY OF TRAVIS)

I, James B. Carpenter, being duly sworn, deposes and states as follows:

1. I am one of the inventors named in the above-identified patent application. I am an employee of 3M Company, the assignee of the above-identified patent application.

2. I have read and understood the Office Action dated April 7, 2005, for the above-identified patent application.

3. On page 3 of the Office Action, paragraph no. 6, the Patent Office cites U.S. Patent No. 5,102,212 (Patterson). I am familiar with the teachings of this patent and have disclosed this patent in the Background Section of the above-identified application.

4. Patterson teaches the use of a splice element having a v-grooved shaped gripping region. See e.g., Patterson, Figs. 1-5. The splice element is constructed from a deformable material, such as aluminum. See Patterson, col. 5, line 45. The contacting surfaces are designed to deform to the fibers being spliced. See Patterson, col. 5, lines 55-60. A splice element product based on these teachings has been manufactured and sold by 3M Company, under the product name Fibrlok™.

5. A test was performed in which an exemplary glass-glass-polymer (GGP) fiber was gripped by a splice element having a v-groove shaped gripping region made from an aluminum alloy, similar to the splice element described in Patterson. The polymer outer coat (or P-coat), which constitutes the outer perimeter of the GGP fiber, has an ultimate tensile strength (UTS) of around 39 Mpa, which is much less than the UTS of the aluminum gripping region. Results of the test are shown in Figs. 1 and 2 below.

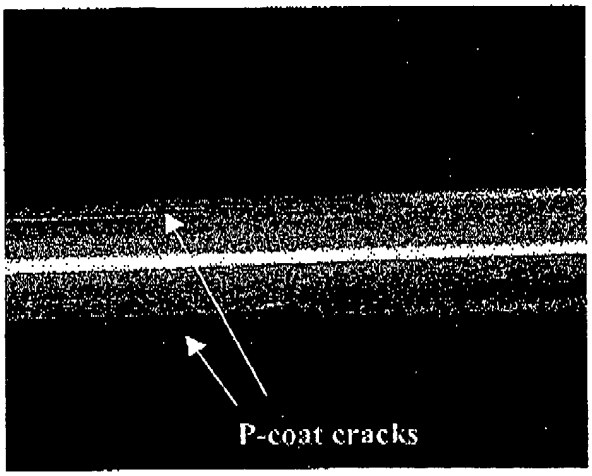


Fig. 1 - A GGP fiber with cracked P-coat

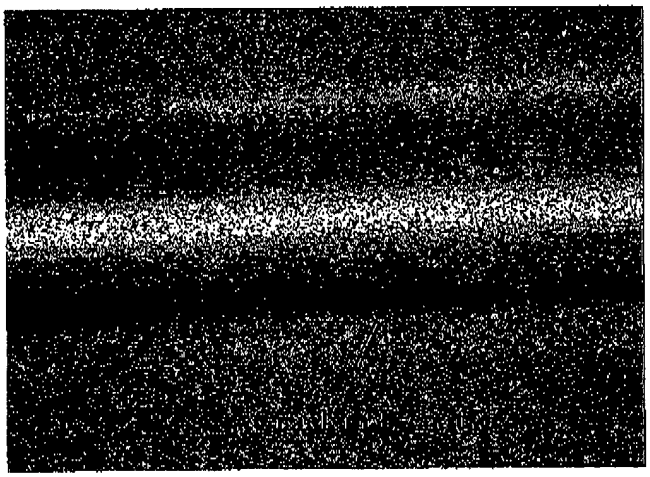


Fig. 2 - A magnified view of the crack in P-coat

6. Figure 1 shows the GGP fiber after it was removed from the conventional splice element having a v-groove-shaped gripping region. The fiber had cracked and deformed

surfaces where it was contacted by the element in three locations. Two such cracks are visible in Fig. 1. Fig. 2 shows a magnified view of one of the cracks.

7. Figure 3 is a graph illustrating an experiment involving the mechanical performance of a splice device having a gripping region that provides a substantially even distribution of force to the outer perimeter (in this example, a semi-circular shaped gripping region) of a GGP fiber gripped therein. The data was recorded after exposure to an environment at 85 C. and 95% relative humidity, conditions described in the Telcordia specification GR-765 for mechanical optical splices. A comparative sample, where a GGP fiber was gripped by a splice element having a v-groove shaped gripping region (labeled "V-Groove"), similar to the device described in Patterson, was also exposed to similar conditions.

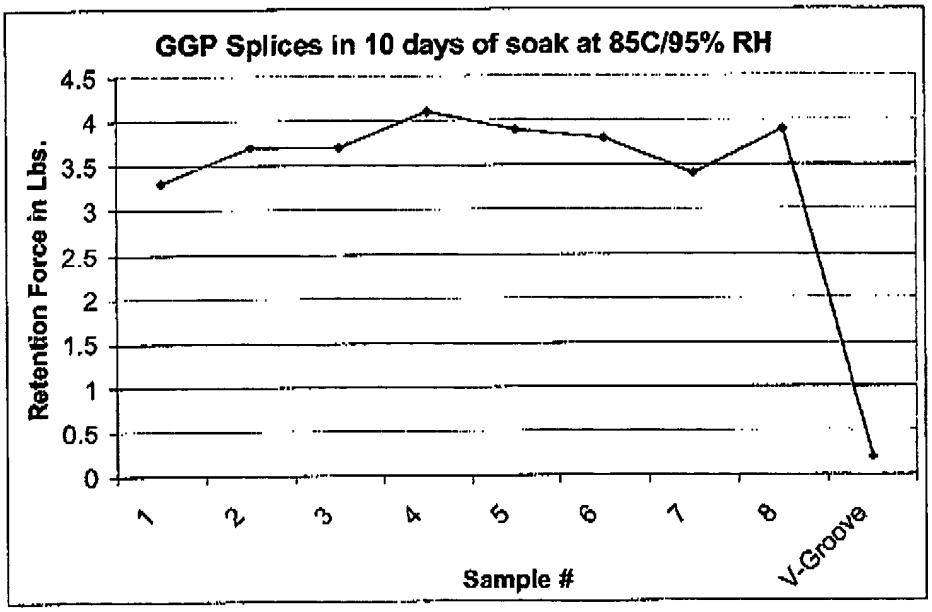
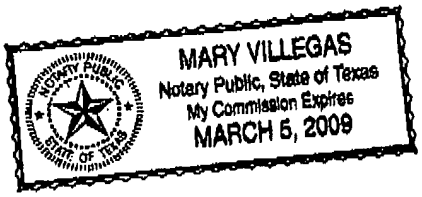


Figure 3

8. The data indicates that fiber retention for the comparative sample was significantly reduced. For the comparative "V-Groove" sample, the fiber retention is about 3/4 pound, below minimum fiber retention standards. The GGP fibers gripped by a splice element having a gripping region that provides a substantially even distribution of force to the outer perimeter of the fiber had fiber retention values of about 3-4 pounds.

Further affiant saith not.



(Seal)

James B. Carpenter

James B. Carpenter

Subscribed to and sworn before me
this 8TH day of AUGUST, 2005.

Mary Villegas

Notary Public, State of Texas